Features

Regulated Converters

- 10W in 2" x 1" Package
- 2kVDC and 3kVDC Isolation Options
- 2:1 or 4:1 Input Voltage Range
- Continuous Short Circuit Protection (power limiting)
- Synchronous Rectification on all Del outputs
- Full SMD internal design
- Remote Control Pin
- Efficiency to 87%

ECONOLINE
DC/DC-Converter
with 3 year Warranty

RECOM

10 Watt 2" x 1" Single & Dual Output



RoHS 2011/65/EU 6/6

E-224736

EN-60950-1 Certified
EN-60601-1 Certified
UL-60950-1 Certified

REC10/M

Description

The REC10-xxxxS_D/M -series offer single and dual regulated outputs in a 2"x1" package with 2kVDC or 3kVDC isolation options and are suitable for higher power industrial applications. Remote on/off control is standard. The converters can deliver 150% rated power for short periods of time to cope with applications with large capacitive loads or high start up currents.

Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (typ.) (%)	Max. Cap. Load
REC10-xx3.3S/H*/M	9-18, 18-36, 36-75	3.3	2000	83-84	2200µF
REC10-xx05S/H*/M	9-18, 18-36, 36-75	5	2000	86-87	2200µF
REC10-xx12S/H*/M	9-18, 18-36, 36-75	12	833	85-86	2200µF
REC10-xx15S/H*/M	9-18, 18-36, 36-75	15	667	85-86	2200µF
REC10-xx05D/H*/M	9-18, 18-36, 36-75	±5	±1000	82-83	±1000µF
REC10-xx12D/H*/M	9-18, 18-36, 36-75	±12	±416	85-86	±1000µF
REC10-xx15D/H*/M	9-18, 18-36, 36-75	±15	±333	85-86	±1000µF
REC10-xx3.3SZ/H*/M	9-36, 18-75	3.3	2000	82	2200µF
REC10-xx05SZ/H*/M	9-36, 18-75	5	2000	86	2200µF
REC10-xx12SZ/H*/M	9-36, 18-75	12	833	85	2200µF
REC10-xx15SZ/H*/M	9-36, 18-75	15	667	86	2200µF
REC10-xx05DZ/H*/M	9-36, 18-75	±5	±1000	82	±1000µF
REC10-xx12DZ/H*/M	9-36, 18-75	±12	±416	85	±1000µF
REC10-xx15DZ/H*/M	9-36, 18-75	±15	±333	86	±1000µF

* Standard is /H2 for 2kVDC isolation,
use /H3 for 3kVDC Isolation

2:1
xx = 9-18Vin = 12,
xx = 18-36Vin = 24,
xx = 36-75Vin = 48

4:1
xx = 9-36Vin = 24,
xx = 18-75Vin = 48

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range		2:1 or 4:1
Input Filter		PI Network
Output Voltage Accuracy (the Output 3.3V is ±1.2% max.)		±1.0% max.
Line Voltage Regulation		±0.3% max.
Load Voltage Regulation	Single	±0.5% max.
(25% to 100% full load)	Dual	±1.2% max.
Cross Regulation (100%: 25% to 100% full load)		±5% max.
Output Ripple and Noise (with 100n output capacitor and 20MHz BW)		100mVp-p max.
Start-up time (Nom. Vin at 100% Load)		25ms typ.
Operating Frequency (Full Load)		300kHz typ.
Efficiency (Nom. Vin at 100% Load)		see Selection Guide
Minimum Load		0%
Input Surge Voltage (100ms max.)	12V Input	36VDC
	24V Input	50VDC
	48V Input	100VDC

continued on next page

**Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Refer to Application Notes

REC10-S_D/H*/M Series

Specifications cont. (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Isolation Voltage	H2-Suffix	(tested for 1 second)	2000VDC
		(rated for 1 minute)	1000VAC / 60Hz
	H3-Suffix	(tested for 1 second)	3000VDC
		(rated for 1 minute)	1500VAC / 60Hz
Under Voltage Lockout (2:1)		12V Input	DC-DC on 8.3VDC, DC-DC off 7.9VDC
		24V Input	DC-DC on 17.4VDC, DC-DC off 16.7VDC
		48V Input	DC-DC on 35.7VDC, DC-DC off 34.3VDC
Under Voltage Lockout (4:1)		24V Input	DC-DC on 8.3VDC, DC-DC off 7.9VDC
		48V Input	DC-DC on 17.4VDC, DC-DC off 16.7VDC
Isolation Capacitance			1200pF typ.
Isolation Resistance			1 GΩ min.
Overload Protection			150% typ.
Short Circuit Protection			Continuous, Auto Restart
Operating Temperature Range		4:1	-40°C to +71°C (see Graph)
(free air convection)		2:1	-40°C to +81°C (see Graph)
Storage Temperature Range			-55°C to +105°C
Remote On/Off		DC/DC ON	Open or 3.5V<Vr<12V
		DC/DC OFF	Short or 0V<Vr<1.2V
Temperature Coefficient			±0.05% max.
Relative Humidity			95% RH
Case Material			Nickel Plated Metal with Non-Conductive Base
Thermal Impedance		Natural convection	12°C/W
Maximum Case Temperature			100°C
Vibration			10-55Hz, 2G, 30mins along X,Y & Z
Package Weight			27g
Packing Quantity			10 pcs per Tube
MTBF (+25°C) } *Detailed Information see*		using MIL-HDBK 217F	>1000 x 10^3hours
(+71°C) } *Application Notes chapter "MTBF"*		using MIL-HDBK 217F	>250 x 10^3hours

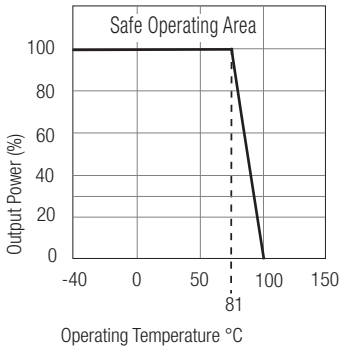
Certifications

EN General Safety	Report: SPCLVD1211033-2	EN60950-1:2006 + A12:2011
UL General Safety	Report: E224736	UL 60950-1 1st Ed.
		C22.2 No. 60950-1-03
EN Medical Safety	Report: MDD12060585 + RM1206085	
	IEC/EN 60601-1 3rd Edition; Medical Report + ISO14971 Risk Assessment	

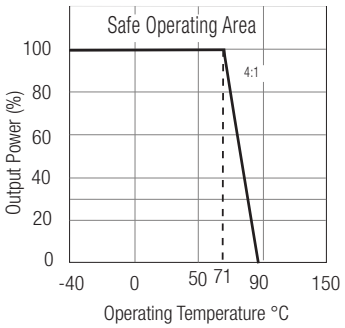
Note: Refer to Application Notes for EMC Class B Filter suggestion

Derating-Graph (Ambient Temperature)

2:1 Converters

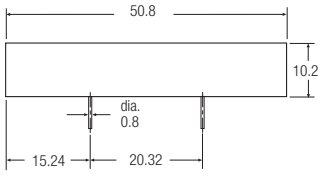


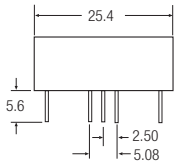
4:1 Converters



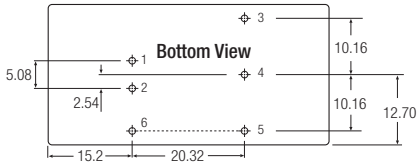
REC10/M

Package Style and Pinning (mm)





2" x 1" Package



Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
3	+Vout	+Vout
4	No Pin	Com
5	–Vout	–Vout
6	CTRL	CTRL

XX.X ± 0.5 mm
XX.XX ± 0.35 mm

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.